

Section 1

Introduction

Throughout the history of Long Beach, the residents of Long Beach have dealt with the various natural hazards affecting the area. Historical photos, journal entries, and local newspapers show that the residents of the area have experienced earthquakes, floods, earth movements, windstorms, and tsunamis.

Although early in Long Beach history there were fewer people in the area, the natural hazards adversely affected the lives of those who depended on the land and climate conditions for food and welfare. As the population of the City continued to increase, the exposure to natural hazards created an even higher risk than had ever been experienced in Long Beach history.

The City of Long Beach is located in the southwest quadrant of Los Angeles County, and offers the benefits of living in a Mediterranean type of climate. The City is characterized by the unique and attractive landscape that makes the area so popular. However, the potential impacts of natural hazards associated with the terrain make the environment and population vulnerable to natural disasters.

The City is subject to earthquakes, flooding, earth movements, windstorms, and tsunamis. It is impossible to predict exactly when these disasters will occur, or the extent to which they will affect the City. However, with careful planning and collaboration among public agencies, private sector organizations, and citizens within the community, it is possible to minimize the losses that can result from these natural disasters.

Following is a summary of the disaster events in Long Beach history:

- 1992 Civil Unrest - \$2,900,000 in federal public assistance.
- 1992 Winter Storms - \$200,000 in federal public assistance.
- 1993 Winter Storms - \$300,000 in federal public assistance.
- 1994 Northridge Earthquake - \$90,000 in federal public assistance.
- 1995 Flooding - \$597,149 in federal public assistance.
- 1998 – El Nino Storms - \$204,742 in federal public assistance.

Why Develop a Mitigation Plan?

As the cost of damage from natural disasters continues to increase, the community realizes the importance of identifying effective ways to reduce vulnerability to disasters. Natural hazard mitigation plans assist communities in reducing risk from natural hazards by identifying resources, information, and strategies for risk reduction, while helping to guide and coordinate mitigation activities throughout the City.

The plan provides a set of action items to reduce risk from natural hazards

through education and outreach programs and to foster the development of partnerships, and implementation of preventative activities such as land use programs that restrict and control development in areas subject to damage from natural hazards.

The resources and information within the Mitigation Plan:

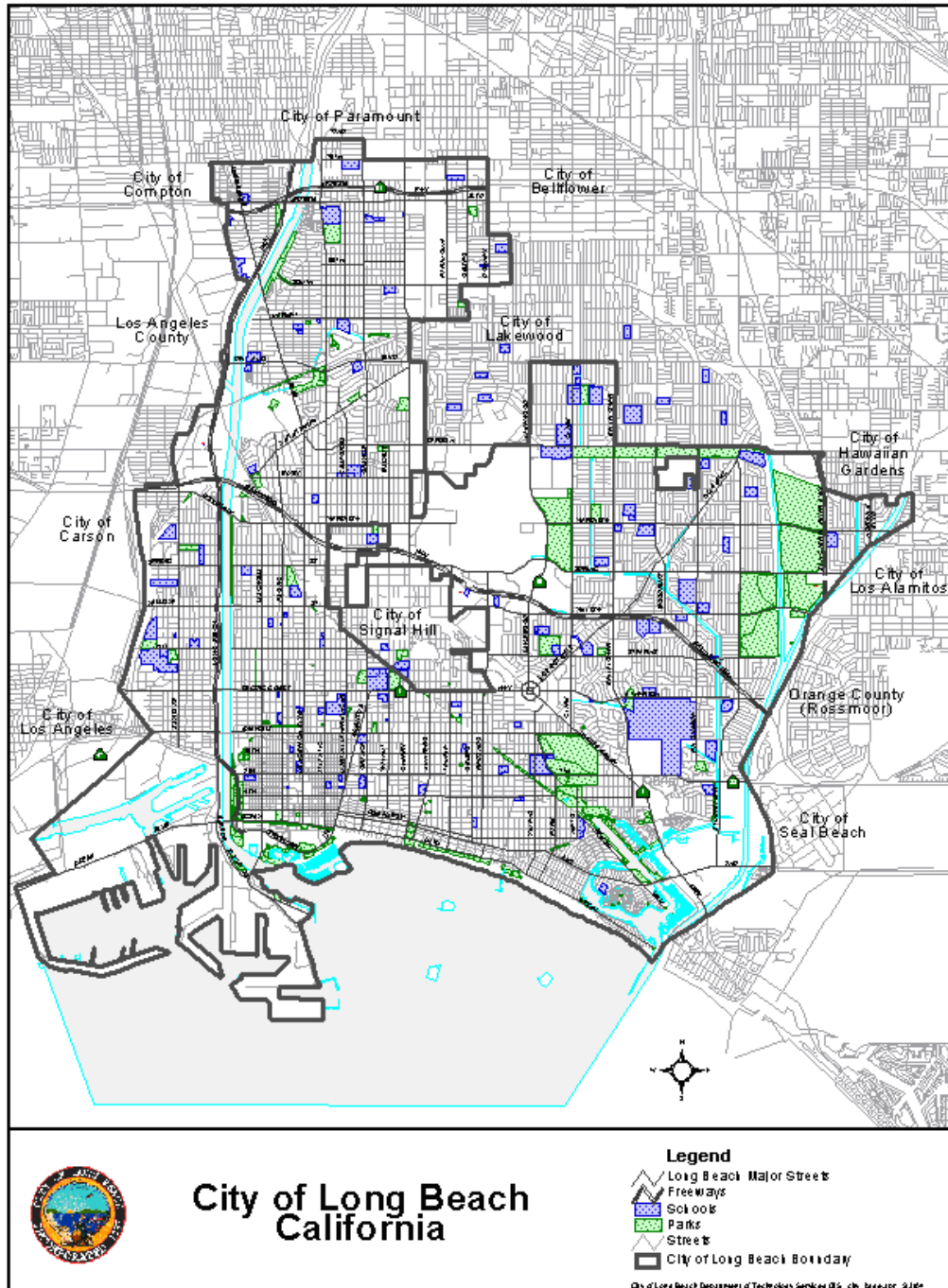
- (1) Establish a basis for coordination and collaboration among agencies and the public in City of Long Beach;
- (2) Identify and prioritize future mitigation projects; and
- (3) Assist in meeting the requirements of federal assistance programs.

The mitigation plan works in conjunction with other city plans, including the Multi-Hazard Functional Plan.

Whom Does the Mitigation Plan Affect?

The City of Long Beach Natural Hazards Mitigation Plan affects the entire city. Map 1-1 shows major roads in the City of Long Beach. This plan provides a framework for planning for natural hazards. The resources and background information in the plan is applicable city-wide, and the goals and recommendations can lay groundwork for other local mitigation plans and partnerships.

**Map 1-1: Base Map of City of Long Beach
(Source: City of Long Beach GIS)**



Natural Hazard Land Use Policy in California

Planning for natural hazards should be an integral element of any city's land use planning program. All California cities and counties have General Plans and the implementing ordinances that are required to comply with the statewide planning regulations.

The continuing challenge faced by local officials and state government is to keep the network of local plans effective in responding to the changing conditions and needs of California's diverse communities, particularly in light of the very active seismic region in which we live.

This is particularly true in the case of planning for natural hazards where communities must balance development pressures with detailed information on the nature and extent of hazards.

Planning for natural hazards, calls for local plans to include inventories, policies, and ordinances to guide development in hazard areas. These inventories should include the compendium of hazards facing the community, the built environment at risk, the personal property that may be damaged by hazard events and most of all, the people who live in the shadow of these hazards.

Support for Natural Hazard Mitigation

All mitigation is local, and the primary responsibility for development and implementation of risk reduction strategies and policies lies with local jurisdictions. Local jurisdictions, however, are not alone. Partners and resources exist at the regional, state and federal levels. Numerous California state agencies have a role in natural hazards and natural hazard mitigation. Some of the key agencies include:

- The Governor's Office of Emergency Services (OES) is responsible for disaster mitigation, preparedness, response, recovery, and the administration of federal funds after a major disaster declaration;
- The Southern California Earthquake Center (SCEC) gathers information about earthquakes, integrates this information on earthquake phenomena, and communicates this to end-users and the general public to increase earthquake awareness, reduce economic losses, and save lives.
- The California Division of Forestry (CDF) is responsible for all aspects of wildland fire protection on private, state, and administers forest practices regulations, including landslide mitigation, on non-federal lands.
- The California Division of Mines and Geology (DMG) is responsible for geologic hazard characterization, public education, the development of

partnerships aimed at reducing risk, and exceptions (based on science-based refinement of tsunami inundation zone delineation) to state mandated tsunami zone restrictions; and

- The California Division of Water Resources (DWR) plans, designs, constructs, operates, and maintains the State Water Project; regulates dams; provides flood protection and assists in emergency management. It also educates the public, serves local water needs by providing technical assistance.
- The California Seismic Safety Commission(CSSC) investigates and manages for the State of California earthquake related issues throughout the State through a comprehensive 11 point Loss Reduction Plan program, which serves as the State's strategic plan, guiding State executive and legislative branches with overall implementation strategies and priorities for seismic safety. The Commission's activities include but are not limited to promoting world-class earthquake research, sponsoring and/or reviewing earthquake related legislation, advising the Legislature and Governor on policies and programs needed to reduce earthquake risks throughout California, educating professionals and the general public about earthquake risk and how to better deal with them, and creating specialized committees of experts to investigate specific policy areas and recommend regulatory and policy changes.

Plan Methodology

Information in the Mitigation Plan is based on research from a variety of sources. Staff from the City of Long Beach conducted data research and analysis, facilitated Planning Team meetings and public outreach activities, and developed the final mitigation plan. The research methods and various contributions to the plan include:

Input from the Planning Team:

The Natural Hazards Mitigation Advisory Committee convened seven times to guide development of the Mitigation Plan. The Advisory Committee played an integral role in developing the mission, goals, and action items for the Mitigation Plan. The Advisory Committee consisted of representatives of 14 local agencies, including:

City of Long Beach	City Manager's Office
	Fire Department
	Disaster Management
	Technology Services – GIS

	Planning & Building
	Community Development
	Police Department
	Public Works Department
	Harbor Department
	Water Department
	Department of Health and Human Services

Stakeholder Interviews:

City staff distributed copies of the Plan draft to 23 agencies and/or specialists from organizations interested in natural hazards planning. The data and support gained from the review process was very valuable to the overall planning effort. A complete listing of all stakeholders (reviewers) is located in Appendix B: Public Participation.

State and federal guidelines and requirements for mitigation plans:

Following are the Federal requirements for approval of a Natural Hazards Mitigation Plan:

- Open public involvement, with public meetings that introduce the process and project requirements.
- The public must be afforded opportunities for involvement in: identifying and assessing risk, drafting a plan, and public involvement in approval stages of the plan.
- Community cooperation, with opportunity for other local government agencies, the business community, educational institutions, and non-profits to participate in the process.
- Incorporation of local documents, including the local General Plan, the Zoning Ordinance, the Building Codes, and other pertinent documents.

The following components must be part of the planning process:

- Complete documentation of the planning process
- A detailed risk assessment on hazard exposures in the community
- A comprehensive mitigation strategy, which describes the goals & objectives, including proposed strategies, programs & actions to avoid long-term vulnerabilities
- A plan maintenance process, which describes the method and schedule of monitoring, evaluating and updating the plan and integration of the Natural Hazards Mitigation Plan into other planning mechanisms

- Formal adoption by the City Council
- Plan Review by both State OES and FEMA

These requirements are spelled out in greater detail in the following plan sections and supporting documentation.

Public participation opportunities were created through use of local media, the City's website, distribution of a natural hazards questionnaire, and the City Council public meeting. In addition, the makeup of the plan implementation Committee insures a constant exchange of data and input from outside organizations (see Section 2: Plan Maintenance).

Through its consultant, Emergency Planning Consultants, the City had access to numerous existing mitigation plans from around the country, as well as current FEMA hazard mitigation planning standards (386 series).

Other reference materials consisted of county and city mitigation plans, including:

- Clackamas County (Oregon) Natural Hazards Mitigation Plan
- Six County (Utah) Association of Governments
- Upper Arkansas Area Risk Assessment and Hazard Mitigation Plan
- Urbandale-Polk County, Iowa Plan
- Hamilton County, Ohio Plan
- Natural Hazard Planning Guidebook from Butler County, Ohio

Hazard specific research: City of Long Beach staff collected data and compiled research on five hazards: earthquakes, flooding, earth movements, windstorms, and tsunamis. Research materials came from the City's General Plan, Threat Assessment contained in the Multi-Hazard Functional Plan, and state agencies including OES and CDF.

The City of Long Beach staff identified current mitigation activities, resources and programs, and potential action items from research materials and stakeholder interviews.

Public Input

The City of Long Beach encouraged public participation and input in the Natural Hazards Mitigation Plan by posting its activities in the media and on the internet. In addition, the City distributed and received over 650 natural hazards questionnaires (see Appendix B for results). During the review period for the Draft Plan, copies of the Plan were distributed to interested residents. A public meeting on the Draft Plan was held before the City Council on October 19, 2004. There was no public input gathered during the public hearing.

The resources and information cited in the mitigation plan provide a strong local

perspective and help identify strategies and activities to make City of Long Beach more disaster resistant.

How Is the Plan Used?

Each section of the mitigation plan provides information and resources to assist people in understanding the City and the hazard-related issues facing citizens, businesses, and the environment. Combined, the sections of the plan work together to create a document that guides the mission to reduce risk and prevent loss from future natural hazard events.

The structure of the plan enables people to use a section of interest to them. It also allows City government to review and update sections when new data becomes available. The ability to update individual sections of the mitigation plan places less of a financial burden on the City. Decision-makers can allocate funding and staff resources to selected pieces in need of review, thereby avoiding a full update, which can be costly and time-consuming. New data can be easily incorporated, resulting in a natural hazards mitigation plan that remains current and relevant to City of Long Beach.

The mitigation plan is organized into three parts. Part I contains an executive summary, Mitigation Actions Matrix, introduction, and plan maintenance section. Part II contains a city profile, risk assessment, and hazard-specific sections. Part III includes the appendices. Each section of the plan is described below.

Part I: Mitigation Actions

Executive Summary: Hazard Mitigation Action Plan

The Action Plan provides an overview of the mitigation plan mission, goals, and action items.

Attachment 1: Mitigation Actions Matrix

The plan action items are included in this section, and address multi-hazard issues, as well as hazard-specific activities that can be implemented to reduce risk and prevent loss from future natural hazard events.

Section 1: Introduction

The Introduction describes the background and purpose of developing the mitigation plan for City of Long Beach.

Section 2: Plan Maintenance

This section provides information on plan implementation, monitoring and

evaluation.

Part II: Hazard Analysis

Section 3: Community Profile

This section presents the history, geography, demographics, and socioeconomics of the City of Long Beach. It serves as a tool to provide an historical perspective of natural hazards in the City.

Section 4: Risk Assessment

This section provides information on hazard identification, vulnerability and risk associated with natural hazards in City of Long Beach.

Sections 5-9: Hazard-Specific Sections

Hazard-Specific Sections on the five chronic hazards is addressed in this plan. Chronic hazards occur with some regularity and may be predicted through historic evidence and scientific methods. The chronic hazards addressed in the plan include:

- Section 5: Earthquake
- Section 6: Flooding
- Section 7: Earth Movement (Debris Flow & Landslides)
- Section 8: Windstorm
- Section 9: Tsunami

Each Hazard-Specific Section includes information on the history, hazard causes and characteristics, and hazard assessment.

Part III: Resources

The plan appendices are designed to provide users of the City of Long Beach Natural Hazards Mitigation Plan with additional information to assist them in understanding the contents of the mitigation plan, and potential resources to assist them with implementation.

Appendix A: Plan Resource Directory

The resource directory includes City, regional, state, and national resources and programs that may be of technical and/or financial assistance to City of Long Beach during plan implementation.

Appendix B: Public Participation

This appendix includes specific information on the various public processes used during development of the plan.

Appendix C: Benefit/Cost Analysis

This section describes FEMA's requirements for benefit cost analysis in natural hazards mitigation, as well as various approaches for conducting economic analysis of proposed mitigation activities.

Appendix D: List of Acronyms

This section provides a list of acronyms for City, regional, state, and federal agencies and organizations that may be referred to within the City of Long Beach Natural Hazards Mitigation Plan.

Appendix E: Glossary

This section provides a glossary of terms used throughout the plan.